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ORIGINAL ARTICLES.

NOTE ON LID PRESSURE AS A CAUSE OF ASTIGMATISM.

BY LUCIEN HOWE, OF BUFFALO, N. Y.

It has long been known that the radii of curvature of the cornea in the vertical meridian, are, as a rule shorter than those in the horizontal meridian, and the cause of that has, in general, been attributed to the pressure of the upper and lower lids. As a theory this has held its place in text-books, but until recently there have been few, if any, definite observations to substantiate it. Bull,[1] of Paris, has accurately described the changes which it is possible to produce in the cornea, by means of forcible lid pressure, and the degree of that change is surprising to one who has not had his attention called to the experiment. By extraordinary pressure continued as long as consistent with comfort, as much as nine dioptries of astigmatism could be produced, that amount being measured by the ophthalmometer. The ability to alter thus the form of the

[1]Des Consequences optiques et pathologiques du clignement des Paupières.

cornea by forcible lid pressure undoubtedly varies with individuals. Nor is this to be wondered at, when we remember the various factors involved in this act, namely, the strength of the orbicularis, or the prominence of the cornea, or other peculiarities of the individual. I have endeavored to repeat the observations of Bull on my own cornea, but found that the fibers of the orbicularis were not sufficiently strong to produce anything like so decided a difference in the curvatures, although I have seen an approach to that in one or two other persons. In the excellent article referred to, Bull mentions the fact of a lid pressure in the case of two or three artists, because, as he observes, the habit which artists have of pinching the lids together—making "clignement"—would be apt to produce a certain amount of astigmatism. The suggestion has seemed to me an excellent one, and at first the statement appeared to be easy of verification or refutation. For nearly every one who has been in practice for twenty years can turn to his own record of cases and find there a number of persons of almost any given occupation. But on consideration it will be apparent that such cases are not suitable ones to be taken into account in such connection, for the fact of their having applied for relief is prima facie evidence of imperfect vision, and the object in such an inquiry is to obtain the amount of astigmatism among those who consider their eyes practically perfect for the work which they have to do.

Some difficulty was therefore experienced in obtaining the necessary data, for the reason that artists are apt to imagine that imperfect vision would imply an imperfect representation, on their part, of the objects which it was their aim to depict. But many assented without hesitation, and the tests were made as accurately as possible.

It will be remembered from the first, of course, that the eyes of most persons, no matter what their occupation may be, are astigmatic to a certain extent. One of the most instructive studies in this direction was made by Roosa and the result presented in an article "On the Prevalence of Corneal Astigmatism in Eyes with Normal Acuity of Vision and Without

Asthenopia." With the assistance, of Dr. Deynard he made measurements of the corneal astigmatism in each eye of one hundred persons. Among those were physicians, students, dressmakers, clerks, tradesmen and workmen of various kinds and classes, none of whom suspected that their eyes were not normal in every respect. Among these two hundred eyes, eighteen were found by the ophthalmoscope to be emmetropic. In eighteen, also, the curvature of the cornea was seen to be normal as measured with the ophthalmometer, and only two eyes in the whole list were free from defect as shown by both ophthalmoscope and ophthalmometer together. The average amount of astigmatism existing in all was .67 of a dioptry.

With any such imperfection of the eye of persons with ordinary occupations, it is not surprising that artists should have at least their share of ametropia. It is well known that the artists pinch their lids together when they stand at a distance from the easel, attempting thus to get the effect of distance, as it is called; but really they pinch the lids together and produce a certain amount of astigmatism, temporary or permanent.

Thus far I have been able to make a list of thirty-three artists, or sixty-six eyes, finding in them that the average amount of astigmatism present was .905 dioptries.

If lid pressure were the only element in the production of astigmatism, we would naturally expect that the radius of curvature in the vertical meridian would be shorter than the radius of the horizontal meridian, and that the axes of the astigmatism would be exactly vertical and horizontal. The numerous exceptions to this rule are facts of every-day experience. So is it also with artists; for while as a rule, this radius of curvature vertically was less than the other and more frequently so than with the vast majority of other persons, still examples are by no means rare in which artists have the axes of least curvature at a considerable angle from the vertical or even where the positions of the two axes are reversed. The element of time in the production of astigmatism by lid pressure is an important one. I am quite sure that those who have

been accustomed to pinch the lids together for a considerable number of years have almost without exception produced an irregularity in the form of the cornea. At least this is shown among the sixty-six eyes here examined and the degree of the astigmatism bears such a constant relation to the length of time during which the habit of lid pressure has existed that they appear to stand in the relation of cause and effect. The examination of twenty-two of these artists gave a much greater average than is here presented, but the last who were added to the list were younger artists and those who had practiced lid pressure to a much less degree, and average amount of ametropia was reduced to the degree here given.

I am aware that generalizations are hardly warranted from so small an amount of data, but while no positive conclusions can be drawn from these, the inferences are so strong as to warrant their being presented.

ALBUMINURIC RETINITIS.

BY C. M. HOBBY, M.D., IOWA CITY, IOWA.

In calling attention to puerperal albuminuric retinitis, Dr. Culbertson has rendered a service to the profession which should be reciprocated by a general contribution of experiences with this condition. There are many unsolved problems concerning retinitis albuminurica, and its relations to child-bearing, and a thorough revision of the whole subject is desirable. Blindness undoubtedly occurs from uræmic poisoning without tangible ophthalmoscopic appearances. There is a relation between retinitis albuminurica and ecclampsia; this is so marked that exudation is found in the retina of thirty per cent. of cases of puerperal ecclampsia. In Dewee's "System of Midwifery," tenth edition, eight cases of puerperal convulsions are reported, in six disturbance of vision was noted, and four correspond in symptomatology with retinitis albuminurica.

The pathology of the so-called "retinitis albuminurica" needs further study. How far can we consider its deposits as inflammatory exudations? How much of the impairment of vision is due to the exudative processes and how much to toxæmia? Does not urea, or whatever is the retained excrement in uræmic poisoning, produce effects analogous to those produced by quinine, salicylic acid, iodoform and other known and unknown agents?

I append two cases both ecclamptic, which have come under my personal observation.

CASE I.—December 26, 1881. Mrs. M. S., aged 39; mother of six children, states that two years ago while pregnant she noticed gradual and finally complete failure of vision, without

other manifestations that she could recall, except that the left eye was the worst. From this she in great part recovered after childbirth, which was without incident, and she was able to attend to household affairs as well as ever. One week ago, being, as she supposed, in the fourth month of pregnancy, she again noticed failure of vision of both eyes. On examination she was barely able to count fingers with the left eye at six inches; the right eye giving $^{16}/_{LXIV}$. The ophthalmoscope showed the characteristic appearances of retinitis albuminurica and the urine was loaded with albumin. One week later the vision of the right eye had dropped to $^{6}/_{CC}$. Energetic advice to terminate the pregnancy was rejected, and she was allowed to go to full term without treatment; she then developed convulsions and died in a convulsion after the forcible delivery of a dead child.

CASE II.—May 9, 1894. Mrs. V,, aged 43. Mother of seven children, with no previous history of serious illness or of albuminuric symptoms, developed convulsions during confinement seven weeks ago. She was forcibly delivered of a living child and upon return to consciousness discovered that she was blind; the blindness was attributed by her medical attendant to retinitis albuminurica. Improvement, slow but continuous, followed up to the time of the examination, when O. S. S= $^{20}/_{LXX}$ and O. D. S=$^{20}/_{L}$. Ophthalmoscopic examination showed the characteristic lesions of retinitis albuminurica. The urine was scanty, of low specific gravity, but contained no albumen. During the first week after examination the mean quantity for twenty-four hours was twenty-seven ounces; a quantitative examination for urea gave under three hundred grains. Two months later the quantity passed was forty-one ounces (mean of a week), containing over four hundred and fifty grains of urea. The vision improved slowly, the exudate spots grew smaller, many disappeared entirely, and the vision was on July 31, 1894, O. S. S=$^{20}/_{XXX}$; O. D. S=$^{20}/_{XL}$.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, MAY 3, 1894.

D. ARGYLL ROBERTSON, M.D., F.R.S.E., President, in the Chair.

ON PERIODICAL TESTING OF EYESIGHT IN SCHOOLS.

MR. PRIESTLY SMITH read a paper on this subject. Authorities were agreed that advantage would accrue from an annual testing of the eyesight of school children, and several commissions had spoken to this effect, and formulated definite proposals. Hitherto no considerable advance had been made towards this end, for the proposals usually put forward had been that the refraction of every scholar should be ascertained once a year by the school doctor. It would be a long time before every school had its school doctor and every school doctor was an efficient oculist. The necessities of the case could be met more easily, and would, he hoped, be so met in a large number of schools throughout the country before long. The governors of King Edward VI.'s schools in Birmingham, which comprise about 2,200 boys and girls aged from 8 to 19, had established, three years ago, a periodical physical examination of the scholars in regard to height, weight, chest measurement, eyesight and hearing. The eyesight test was carried out by certain teachers appointed for the purpose. It made no pretence of being a scientific pro-

ceeding; there was no attempt to estimate refraction or diagnose disease. Any such attempt was worse than useless unless the examiner were an ophthalmic expert. In every case in which the vision in either eye was less than $^{6}/_{18}$, an intimation of the fact was sent to the parent, and with him rested the responsibility of obtaining the necessary advice and choosing the adviser. The Anthropometric Committee, appointed at the last meeting of the British Association for the Advancement of Science, having Professor Cleland and Professor Windle for its chairman and secretary, had lately issued an enquiry to a large number of schools as to whether, and to what extent, periodic physical examination of the scholars was in force. From the replies received, it appeared that the eysight was tested in eight out of 483 boys' schools in England, Scotland and Ireland (Whitaker's list); and in six of 129 girls' schools in England; while color vision was tested in three only of the whole number. Many of the principals, however, expressed the willingness to take up anthropometric work on receiving directions for carrying it out. The speaker laid before the meeting the printed directions which had been drawn up, and which were to be sent, in the first instance, to about 200 schools. The eyesight test included in this scheme was practically the same as already in operation in the King Edward's schools in Birmingham. It involves practically no expense, and very little trouble to the school authorities, and it interested at least one teacher in every school in the eyesight of the scholars. In advocating this system, the speaker did not in the least undervalue the importance of a thorough medical examination of schools, and he knew that many schools already had duly appointed medical officers competent to deal with errors of refraction, but these were exceptions. By making this simple eyesight test a part of the anthropometric scheme, now being so energetically pushed by the Committee of the British Association, they would, he was confident, attain the desired end in a large number of schools, where it could hardly be attained in any other way.

TEST OF VISION.—These tests will serve to detect the pres-

ence of certain common defects of vision. Such defects are often overlooked or disregarded, to the permanent detriment of the pupil. The tests will not reveal the nature or cause of a defect. This can only be determined by an expert.

(*a*) ACUTENESS OF VISION.—(1) Hang on the wall, in a good light, a set of Snellen's test letters; these are in general use, and afford records which can be universally compared. *No others should be substituted for them.* (2) Draw a line on the floor at a distance of exactly six meters from the letters, and let each pupil in turn toe this line and try to read the letters, line after line, beginning at the top; in all cases without spectacles or eye-glasses. Each eye is to be tested separately, the other eye being covered, but not pressed upon, by a large card held in the pupil's hand. (3) Record the vision of each eye separately in the form of a fraction, for instance, thus:—

$$\text{R. V.} = {}^{6}/_{\text{VI}}.$$
$$\text{R. V.} = {}^{6}/_{\text{XVIII}}.$$

The numerator is in all cases 6, *i. e.*, the distance of the letters in metres; the denominator is the number which stands over the lower line of letters which can be read. When the vision is less than ${}^{6}/_{\text{LX}}$ it should be recorded by the appropriate sign, viz.: $\text{V.} < {}^{6}/_{\text{LX}}$. (4) Take care that the pupils have no opportunity of learning the letters by rote.

NOTE.—When the vision of either eye is found to be represented by a fraction having a denominator of more than XVIII, it will generally be desirable to report the fact to the parent or guardian, in order that proper advice may be obtained, such report being omitted if this has already been done.

(*b*) COLOR VISION.—(1) Use Holmgren's series of colored wools. (2) Place them in a heap on a white cloth, in a good light. (3) Lay, apart from the heap, the test skein—a pale, pure green. (4) Explain to the pupil that he is to select from the heap and place beside the test skein, all those which appear to him to be of the same kind of color. Do not require him to name them or match them exactly, but to select those which are most nearly like the test skein in color. (5) Mix the

wools again for each pupil, but always use the pale pure green as the test.

A certain number of the pupils—boys, very rarely girls—will match the test-skein falsely with buffs, pinks, and other colors which have no green tint, or will hesitate much before rejecting such. These pupils are more or less color blind, and are thereby permanently unfitted for vocations on land or sea which requite good color vision. Record the defect.

NOTE.—Ascertain by this same test that the person who conducts the color-testing is not himself color-blind. Such cases have been known.

The *Acuteness of Vision* of each pupil should be tested once a year, since certain defects of eye-sight commonly begin during school life.

The test for *Color Vision* need not be repeated, since color-blindness, except that which occurs with disease of the eye, is congenital, not acquired.

The President thought that the proposed scheme might be of great value in throwing light upon the refractive changes going on in the eye in school life. In addition to the proposed examination, he thought it necessary to test the near point of vision for the detection of hypermetropia and defective convergence.

MR. HOLMES SPICER did not understand whether Mr. Priestley Smith's paper applied to elementary schools or not; in the case of the elementary schools, he thought that leaving the duty of remedying the defects of vision in the hands of the parents would end in many cases in their not being remedied at all. It was in the lower grade schools that the examination was most necessary; in one school of 500 pupils that he had examined lately in the East End of London, he had found 40 per cent. of the children, whose acuteness of vision was less than one-half of the normal; the defects were now being treated, but such systematic examination and treatment took a considerable amount of time.

MR. DOYNE dwelt upon the difficulty of obtaining the near point of distinct vision in children.

MR. SIMEON SNELL spoke of the difficutly of obtaining a systematic examination of the eyesight in schools owing to the want of appreciation of the teachers; he thought this was greater in the middle class than in the elementary schools.

MR. PRIESTLEY SMITH, in reply, said it was the higher schools which were likely in the first instance to adopt these tests. He was conscious that the matter was beset with difficulties, as had been pointed out; were it otherwise it would long since have been satisfactorily settled. Referring to the demand which had been made more than once that every school doctor should either periodically examine the children's eyes himself, or call in a specialist for the purpose—that would be very difficult to realise. It was important not to aim too high. An examiner, whether lay or medical, who should attempt to use test glasses without a thorough knowledge of refraction, would do harm rather than good by giving to parents a false feeling of security that their children's eyes had been examined with the necessary skill. He had sought to avoid every unnecessary technicality in the test, and to make it clear that it was not a medical examination. He thought that placing the limit below which defects of vision should be reported at $^{6}/_{XVIII}$ would meet the case fairly well. It would catch quite low degrees of myopia, and though it would not catch all the hypermetropes these would, as a rule, take care of themselves by complaining when any real difficulty existed. It was the progressive myopia which was so commonly neglected that they practicularly wanted to catch.

ON THREE CASES OF TUBERCLE OF THE IRIS.

DR. ARTHUR SANDFORD read notes on three cases. The first two were examples of iritic tuberculous deposits coincident with fresh lung trouble of a similar nature. In one case the latter was a first attack, and in the second was a renewal of tuberculous activity in an old dried-up cavity. The third case was one of primary iritic tuberculosis, the ciliary region, suspensory ligament, and apparently the lens itself being infil-

trated by the tuberculous elements. The case occurred in a child aged 5 years, with tuberculous meningitis. There was no evidence of tuberculous mischief in any other organ. The globe was therefore excised and sections made. The tuberculous mass half filled the anterior chamber. The patient improved greatly in health, and had been under observation ever since (eight years). At present she was a fragile, delicate-looking girl, but free from any special ailment.

MR. JOHNSON TAYLOR was of opinion that in all cases of primary tubercle of the iris the eye should be excised; in secondary tubercle—that is, where other organs were involved—nothing should be done.

DR. HILL GRIFFITH said it had been shown that practically all cases of intraocular tubercle were secondary. It was not possible in any given case to say whether the affection in the eye was primary or not; he did not think such eyes should be excised always, as in many instances slowly-growing tuberculous formations in the iris yielded to treatment, and left an eye with useful vision.

INTRA-CRANIAL ABSCESS ARISING FROM CARIES OF THE SPHENOIDAL CELLS.

Notes of this case were read Dr. A. Sandford. The abscess caused double optic neuritis and subsequent post-neuritic atrophy, with complete blindness, about twenty-seven years before the patient's death, which took place in the Cork District Lunatic Asylum at the age of 78 years. The left half of the skull was exhibited, showing situation of the abscess, which had penetrated the left orbit, causing proptosis and also the outer wall of the skull by erosion of the bone. Internally the tumor had raised up and stretched the optic nerves and commissure.

A RARE FORM OF INTRAOCULAR MELANOMA.

This paper was read by Mr. John Griffith. After giving a brief account of the clinical history of the case, he described

in detail its microscopic appearance. He considered the tumor to be epithelial, starting in the tapetum nigrum of the retina, for there could be no doubt that the cells were not sarcomatous, their size, shape and arrangement having nothing in common with those of sarcoma. The ciliary body was not invaded, but merely displaced inwards by the tumor pushing its way into the lymph space to the outer side of the ciliary muscle. He referred to the works of Mr. Treacher Collins, who had shown that primary epithelial melanomata may take their origin in the ciliary glands. Mr. Griffith, however, did not believe that in his case the growth had originated in this way; he thought it was an instance of a melanoma springing from the retina, and, as it was malignant in nature and epithelial in structure, it conformed rather to the type of carcinoma, although it possessed many features unlike that class of new growth. He saw no reason why epithelial melanomata should not originate in either the retina, the ciliary body, or the iris.

CARD SPECIMENS.

The following were the card specimens:
Mr. Hartridge—"A Case of Strumous Keratitis."
Mr. J. A. Warner—"Two Cases of Ectopia Pupillæ."
Dr. Argyll Robertson—"A Case of Trichosis Bulbi."
Mr. Rockliffe—"A Case of Diabetic Retinitis."
Mr. Simeon Snell—"Spectacles for Entropion."
Mr. Mackinlay—"Cyst of Iris."
Mr. Donald Gunn—"Growth at Yellow Spot."

FRIDAY, JULY 6, 1894.

A NEW OPERATION FOR TRICHIASIS AND DISTICHIASIS.

MR. W. SPENCER WATSON read this paper. A bridge was formed by incisions parallel to one another and to the margin of the lid, including in its substance the whole of the faulty eyelashes; a "button-hole" lying horizontally above the margin

of the lid was thus formed. Into this "button-hole" a "button" marked out in the skin immediately above it by a semilunar incision was turned, and fixed *in situ* by sutures. The result was to place a band of skin, which soon became partly mucoid in character, at the margin of the eyelid; by this means the transplanted eyelashes were quite removed from the cornea and assumed in their growth a normal horizontal direction. A case exhibited showed the advantages of this method of operating.

DR. BRAILEY believed that the operation did not remedy the faculty curve of the upper lid, whereby the cornea was unduly pressed on.

MR. BENSON thought Mr. Spencer Watson was entitled to great credit for introducing the whole series of transposition operations for the relief of deformities of the lids. He thought that this operation was inferior to Van Millingen's operation and its various modifications now in use. The disadvantage of Spencer Watson's operation was that the skin did not turn into satisfactory mucous membrane, small hairs still remained in the skin, and the epithelium was different from that of the cornea, and was always harmful to it.

MR. SPENCER WATSON, in reply, described his first operation and the difference between it and the present method. In his experience, although the skin did not become a true mucous membrane, it did assume a mucoid character, and was not harmful to the cornea.

MONOCULAR ASTEROID HYALITIS.

This paper was read by Mr. Arthur Benson (Dublin). Captain ——, aged 62, was in good health, but was suffering from asthenopia and muscæ in the right eye (V.=$^{6}/_{IX}$. J. 1, and H+0.75 D,). This he attributed to overstrain, caused by excessive and prolonged use of the eyes some thirty years before. He had syphilis as a young man, but there had been no manifestation since. The right vitreous was found to be thickly studded through and through with hundreds of small, station-

ary, cream-colored spheres, arranged apparently without system, and varying in size from extreme minuteness to about a quarter of a millimeter or so in diameter. They suggested the appearance of stars on a clear night so strongly that the name "asteroid hyalitis" seemed suitable, their pathology being unknown. As the eye was otherwise quite normal, and as the vision in it was practically equal to that of its fellow, Mr. Benson thought that the condition was probably congenital. It was not caused by cholesterin crystals, nor did it at all resemble the hyalitis punctata seen in syphilis or in serous cyclitis. It had remained quite unchanged during nine months while under Mr. Benson's observation. In his experience the case was unique.

THE PRESIDENT had seen a similar case, except that the spheres floated about instead of being stationary; in his case there was also incipient cataract.

MR. LANG had also seen a case of spheroidal bodies in the vitreous, but they were movable. The vision was unaffected.

MR. JESSOP suggested that, as these bodies were fixed and were seen with ÷ 32 D., they might be in the lens; he thought that no body in the vitreous could be quite fixed.

DR. BATTAN referred to a case of spheroidal bodies in the front part of the vitreous in a myopic patient of advanced age.

MR. BENSON, in reply, said that the bodies were not confined to the front part of the vitreous, but were closely distributed through the whole vitreous from the back to the front.

NOTES OF A CASE OF SYMPATHETIC OPHTHALMIA OF THE RIGHT EYE WHICH SHOWED ITSELF EIGHTEEN DAYS AFTER A KICK IN THE LEFT EYE.

This paper was read by Dr. Adolph Bronner (Bradford). There were no signs of external wound nor of rupture of the left eye. The eye was enucleated, but there had been several recurrent attacks of typical sympathetic ophthalmia of the right eye during the last two years, serous iritis with opacities of the aqueous and vitreous and slight inflammation of the op-

tic nerve. Twenty similar cases had been recorded, of which, however, only five were genuine. In four of these five the uveal tract of the injured eye was diseased, These cases seemed to speak strongly against the microbic origin of sympathetic ophthalmia.

THE USE OF CHLORINE WATER IN CERTAIN DISEASES OF THE EYE.

This paper was read by Mr. Lawford. He gave notes of cases in which it had proved of real service. His experience of it as an intraocular application was limited to two cases; in both instances suppuration in the anterior chamber was arrested after the use of liquor chlori. The other cases in which the solution had been used included purulent conjunctivitis, membranous conjunctivitis, suppurating ulcers of cornea, and purulent dacryocystitis.

MR. POWER had used aqua chlori not infrequently, but almost entirely in diphtheritic cases.

MR. LANG employed chlorine water at times. He had used it once as an intraocular injection in suppuration of the globe; the suppuration was arrested, but though the eye was retained, it subsequently shrank. He had also used it in hypopyon and and corneal suppuration, but without uniformly satisfactory results.

MR. LAWFORD, in reply, said that Dr. Berry had found suppuration in the vitreous arrested after the use aqua chlori; he had found it very satisfactory in one case of diphtheria. Von Graefe had recommended it in granular lids, but he had had no experience in this affection.

CARD SPECIMENS.

Mr. Griffith—"Case of Filamentary Keratitis."

Mr. Power—"Section of the Orbit in a Case of Congenital Exophthalmos in an Infant."

Mr. Jessop—"Case of Sloughing of Both Eyelids and Eyeball in an Infant with Subsequent Complete Cicatrization."

EIGHTH INTERNATIONAL OPHTHALMOLOGICAL CONGRESS.

EDINBURGH, AUGUST 7–10, 1894.

MR. GEO. A. BERRY opened the Congress by nominating, on behalf of the Provisional Committee appointed by the last Congress at Heidelberg, Dr. Argyll Robertson for President.

PRESIDENT'S ADDRESS.

THE PRESIDENT, Dr. Robertson, upon taking the chair, expressed his thanks for the honor; he stated that if a great interest in the advancement of ophthalmology was a qualification for the office, he possessed that, at least. Edinboro', he observed, was the eye of Scotland, as Athens had been of Greece, and could boast of a distinguished university and eminent teachers, among whom he mentioned Syme, Simpson, Bennett and Goodsir.

The Congress about to begin was the eighth, the first having been held in Brussels in 1857. These international meetings fulfilled an important purpose, not only by reason of the valuable papers, but by furthering international courtesy and good will. International distrust is usually the result of ignorance.

Of those present at the first Congress, there was, perhaps, but a single one in attendance to-day—Prof. Zehender.

Since the last meeting at Heidelberg, 1888, our science has had to deplore the death of two eminent members, Donders and Becker.

Donders was one of the greatest ornaments to science, and especially appreciated by those who knew him personally. He was preeminently a leader of men; stately of presence, wise, firm and able. His works are known to all and need no

mention; his master-mind pointed out the solution of many obscure problems in physiology; in ophthalmology he was supreme, and, with Helmholtz and Von Graefe, he was the creator of modern ophthalmology.

Becker's genial and kindly manner, as well as his great ability, made for him an important place at these meetings. His able investigation of the pathology of the lens had added much to our knowledge of the diseases of that organ.

We have to-day to deplore the recent affliction of the great master, Helmholtz, who has been stricken with paralysis. He has the sincere wishes of every member of this Congress for his speedy recovery.

The President congratulated the members upon the prospects of the present Congress. At the last meeting the propriety of continuing these congresses was gravely discussed. The present one justifies the determination that they should be continued, and that, too, in spite of the Congress at Rome, which also had an ophthalmological section. He anticipated that many more will be held; it would be deplorable to discontinue these meetings.

He concluded his address with the hope that the International Congress may ever flourish, and may each successive meeting be more prosperous than the preceding.

The President read the list of officers as follows: Vice-Presidents, Mr. Powers, of London, and Mr. Swanzy, of Dublin; General Secretary, Mr. Berry; Assistant Secretary, Parent for the French, Hess for the Germans, and Fergus for the English; Honorary Presidents, Panas, Meyer, Landolt, Zehender, Leber, Hansen Grut, Reymond, Snellen, Roosa, Knapp, Critchett, Priestly Smith, Teale and Reid.

The address of welcome was delivered by the Lord Provost on behalf of the city.

At the conclusion of the address the President remarked that it was a unique event in the history of Edinboro' that the chief magistrate should be a member of the medical profession (as the present Lord Provost was), he, therefore, moved that

the Lord Provost be made an honorary member of the Congress. Carried unanimously.

The scientific business was begun by a paper by Dr. Snellen (Utrecht), on the

SUBCONJUNCTIVAL TREATMENT OF OPERATIVE AND TRAUMATIC WOUNDS OF THE CORNEA AND SCLEROTIC.

Such wounds are prone to infection and to be followed by sympathetic inflammation, so that enucleation in the case of every wound involving the ciliary region has been proposed. The old operation for cataract was similarly liable to be followed by sympathetic inflammation. Hence the great interest excited by Graefe's propositions; but it was neither the linear section nor the iridectomy which was the important matter—only the narrow knife remains, and even this is being modified. Thanks to the light which emanated from Edinboro', infection can now be largely avoided. Our first concern is to secure complete closure of the wound. In cataract we must prevent prolapse of the iris. Secondary prolapse is more liable if the iris has been outside the eye during the operation.

Turning the knife forward enables the operator to make a suitable conjunctival flap. The rapid union of this flap removes all danger of external infection, and healing is subconjunctival.

The English operation for squint allows of subconjunctival healing by suturing the conjunctiva, and so by suture of conjunctiva after enucleation.

Glaucoma may also be treated by the subconjunctival method (by sclerotomy and suture of conjunctiva). Javal's ophthalmometer shows that those operations for glaucoma give the best results which show the greatest amount of post-operative astigmatism, and to secure this the incision should be in the sclera, which permits the greatest ectasia.

The good results of subconjunctival treatment of operative wounds has suggested similar procedure for traumatism. After thorough cleansing, Snellen sutures the divided conjunctiva over the wound. He has seen many an eye saved by this means which would have been lost without it.

CATARACT EXTRACTION.

DR. KNAPP, of New York, read a paper entitled, "Remarks on Cataract Extration, Based on a Recent Series of Six Hundred Successive Cases." He would refer to three points in the operation of cataract:

1. Indications for iridectomy.
2. Prolapse of the iris.
3. Operations for secondary cataract.

He had done 630 extractions during the last four years; 30 were excluded from the series here reported on account of the almost hopeless conditions therein present, such as glaucoma, etc., not, however, that all of the 600 reported were uncomplicated. He has done iridectomy in 52 of the 600 extractions, the chief reason being a great tendency to prolapse. He did the iridectomy were the pupil would not be circular after the patient had been placed in bed, fifteen to thirty minutes after the operation. Of the cases of simple extraction, prolapse occurred in 55=10.2 per cent.

Conclusions: Prolapse of the iris is inherent in the method, and will occur in a certain proportion of cases.

Knapp has been unable to avoid this. What harm does it do? Of the 55 cases in which it occurred, 14 required subsequent operations.

Results—V. in 49 good, in 7=$^{20}/_{xx}$.

Two moderately good.

Two lost sight of operated eye.

Two lost sight of both eyes (sympathy).

Secondary operation on the capsule was done in 403 of the 600 cases =66% for the purpose of giving every patient the best possible results. He never operates for this until all irritation has subsided; he prefers the second or third month; the capsule is not yet thickened and cuts like butter.

He opens the capsule for extraction by a linear section under the upper part of the iris.

Before discission, every eye is carefully examined under atropine, to determine to what extent the deficient vision de-

pends upon the opacity of the capsule. The incision should not extend deeply into the vitreous and no aqueous should escape during operation. It should be done under good artificial illumination. If the capsule is too dense, a double needle operation should be practiced or iridectomy.

The reaction is almost *nil.*

In 12 cases the capsulotomy was followed by acute glaucoma; 4 of these were cured by eserine, 7 by iridectomy—one only was lost.

DISCUSSION ON BOTH PAPERS.

DR. LITTLE, of Manchester, Eng., began to practice simple extraction five years ago. Since then he has done 106 simple extractions and 322 combined extractions. The simple extractions were all uncomplicated and carefully selected. They were mature, no thickening of capsule, patients steady and reliable, no undue action of the recti muscles. There were four failures—nearly 4%. In two the iris prolapsed on second and third day, both followed by suppuration.

The third case was lost from glaucoma.

The fourth case, pupil closed from acute iritis.

He had found that prolapse depends largely on the situation of the corneal section, if this be midway between the periphery and center of the cornea, the danger of prolapse is great; the more peripheral the section the less danger of prolapse (!). He had ten cases of prolapse, and excised the prolapsed portion in every case but one.

Among 322 cases with iridectomy, there were but six failures =2%—three from iritis with closure of pupil, one from intra-ocular hemorrhage, one from corneal suppuration, only one case of prolapse of the iris, but a number of slight hernias which had no significance. Vision was nearly equal in both series, as was also the frequency of iritis. He pronounces in favor of iridectomy.

MR. SWANZY, of Dublin, is an advocate of combined extraction, because he is not prepared to face 10% of prolapse of the

iris, and Dr. Knapp says one must be prepared to face this.

He has had only 1% of prolapse in last 200 cases of combined extraction. As soon as Dr. Knapp reduces the percentage to 1% in simple extraction, he shall take up that operation.

The dangers of prolapse are not to be overlooked—beginning with sympathetic ophthalmia all the way down to increased post-operative astigmatism. The coloboma is almost no disfigurement, patients do not complain of it, nor do their friends. To avoid prolapse, the iridectomy must be of a certain kind, the less you excise, the greater the protection against prolapse. The small iridectomy allows the aqueous behind the iris to have an exit, and the smallness of the coloboma permits the sphincter of the iris to act with greater power. The iris should always be properly reposited by a spatula, we should not trust to appearances alone.

The opening of the capsule as done by Dr. Knapp involves the disadvantage of a secondary cataract.

DR. NOYES, of New York, believes iridectomy to be a mutilation, but simple extraction is unsuited in certain cases as where the pupil will not dilate, where there is considerable soft cortex, and in cases with plus tension *i. e.*, something approaching glaucoma.

In the great majority of his operations he does simple extraction; the corneal wound should be large, only 1 mm. above the horizontel diameter at points of puncture and counterpuncture. Iridectomy is painful unless you cocainize to excess, drying the cornea and making the globe soft. He uses atropia before and after operation; has abandoned eserine.

DR. HANSEN GRUT, of Copenhagen.—In regard to Dr. Snellen's claims for the conjunctival flap, this was necessarily made in Graefe's operation. There is one serious event connected with it of which Snellen has not spoken, and that is hemorrhage making the operation more difficult with greater danger of infection. He would like to second Mr. Swanzy in what he says as to simple and combined extraction; of course, simple extraction is the ideal operation.

He can not keep his patients five or six weeks for the secon-

dary operation, and envies Knapp's ability to do so with all his heart. Has heard nothing in these papers which he did not know before. (Great laughter).

MR. CRITCHETT, of London, sides with iridectomy; agrees with all, Swanzy has said. The iris may be anesthetized without excessive cocainization by dropping a few drops of the solution into the anterior chamber.

He formerly opened the capsule by a vertical incision, now he does so by a horizontal one. The lips of the vertical incision overlap, while the lower lip of the horizontal cut falls down.

TEALE, of Leeds, one of the earliest to advocate abandonment of iridectomy, has himself gone through the various phases of the operation.

It is possible to get as good results in every respect without as with iridectomy, If this proposition can be proved, the simple operation gains the day. The older men will not give up their pet operation, but advance in this particular is for the younger men.

SNELLEN, of Utrecht, thought the great cause of prolapse of the iris is to be found in prolapse of this structure during the operation. He teaches his students to cut off the iris if it has prolapsed at the time of operation.

To avoid prolapse:

1. The corneal section must be large.

2. There should be no pressure on the globe, hence he does not use a speculum. He thinks that those who get prolapse often have to thank the speculum for this accident.

3. Anæsthesia, not the amount of cocaine, but the time it is instilled is important, even one half hour before operation. After operation employs pilocarpine.

He almost always punctures the capsule fourteen days after operation. He tells his patients so in advance. In six weeks, the capsule will be too tough.

KNAPP—Swanzy almost does simple extraction. The simple operation is safer; when healing is once complete, the eye is less disposed to after-diseases than with iridectomy. Micro-

scopic examination of such eyes show shreds of capsule and iris in the wound.

For capsulotomy, he does not use a stop-needle; this does not cut, but tears. Grut says nothing new has been advanced. For himself, he did not come here with the intention of making a revelation. His glaucoma cases had not been attended by adhesions. Capsulotomy gives a permanently clear pupil, which is not the case where this is not done.

SCLERAL PUNCTURE AS AN ADJUNCT TO IRIDECTOMY IN THE TREATMENT OF GLAUCOMA,

was the subject of a paper read by Mr. Priestly Smith. The reason for some other procedure than iridectomy in glaucoma is: Iridectomy sometimes fails, even in acute glaucoma, while it is quite uncertain in chronic glaucoma.

The causes of failure of iridectomy are various. The nearness of the lens to the cornea renders a scleral section difficult, and corneal section is not of much use. The latter gives no ectasia nor drainage. Moreover, there is danger of wounding the lens.

It is easy to lower the tension by scleral puncture, making the subsequent iridectomy easier. The sclera is punctured at least 5 mm. back of the cornea with a Graefe knife. The knife should be slightly rotated so as to give a gaping wound, and not completely withdrawn until a bead of fluid escapes.

The character and quantity of the fluid varies, depending upon the state of the vitreous. A perfect knife and absolute asepsis are essential.

The immediate effect is considerable reduction of the tension; when, in a few days, higher tension returns, this may be reduced by pressure upon the globe through the upper lid. The tension finally returns.

Scleral puncture alone is inadequate, and is only recommended as preliminary to iridectomy.

Smith now punctures the sclera in every case prior to iridectomy; has already performed 41 such operations: iridectomy

follows usually at once, but, in a few instances, he has delayed the operation several days.

He now advises the operation (scleral puncture followed by iridectomy) where, a few years ago, he would have despaired of any good result.

DISCUSSION.

ABADIE, of Paris, thought sclerotomy had yet to make its way. It is established iridectomy will cure. Where iridectomy fails, sclerotomy will assuredly be of no service.

PFLUEGER, of Berne, had done an iridectomy which was followed by increased tension. Sclerotomy gave time and the opportunity for a subsequent iridectomy, so that this patient owes his sight to sclerotomy.

HARTLEY, of Leeds, in one case found the difficulties of iridectomy increased after scleral puncture, perhaps because of the too great softness of the globe.

POWERS, of London, had some experience with sclerotomy thirty years ago, when it was done to a considerable extent in London. The results were sometimes very satisfactory, as any method would be which reduces tension. If he had glaucoma and could get no skilled oculist, he would prefer sclerotomy. As for chronic glaucoma, there was not much to be done for it.

DR. SMITH advocates the scleral puncture as an adjunct to iridectomy and *never* as an independent method. Would recommend this operation in every case where there is any sight left to save.

INJURIES OF THE EYE THROUGH FOREIGN BODIES CONSISTING OF COPPER.

DR. LEBER, of Heidelberg, read a paper on this subject. The highly poisonous nature of this chemical substance is very injurious. Extraction of the body is difficult in most cases. When it is removed, the irritation soon subsides. These inurie s are mostly due to percussion caps. The explosion and

flame destroy any germs which may be adherent. Hence it is proper to attempt to save eyes so injured, even if there be pus in the vitreous, provided this can be attributed to the chemical action and not to infection. There is, moreover, in such cases (of copper poisoning) no danger of sympathetic inflammation.

The essential question is: Is the pus due to microbes? There is a high degree of probability that this is not the case, and that the inflammation is aseptic. This may be determined positively by the microscope and by cultures.

Extraction of the foreigh body should be tried whenever any vision is left, and will succeed in about one-half the cases. He would term it conservative treatment of penetrating wounds of the eye due to foreign bodies consisting of copper.

He narrated several clinical histories.

DISCUSSION.

DR. KNAPP related his experience in the removal of such a foreign body, with good results preserved 22 years later.

DR. ROOSA has seen gun-caps remain in the eye for years—in one case, for 20 years. Would ask of Professor Leber if the situation of the injury has not something to do with sympathetic inflammation, as well as microbes.

DR. NOYES reported similar cases.

DR. LEBER had not observed sympathetic inflammation in any case. In two cases he enucleated, but subsequent anatomical examination showed that this had been unnesessary.

DR. PANAS, of Paris, read a paper on

TRAUMATIC PARALYSES OF THE MOTOR NERVES OF THE EYE.

The anatomy explains the symptoms after fracture of the skull.

DR. PANAS made some experiments by subjecting skulls to pressure, and the resulting fracture was the key to the clinical symptoms.

DR. CHIBRET, of Clermont-Ferrand, reported a case of the kind.

A NEW OPERATION FOR PTOSIS.

DR. MULES, of London, designed to substitute the lifting action of the occipito-frontalis for that of the levator, not by scar tissue, which connot be regulated, but by a permanent wire that is adjustable.

DISCUSSION.

DR. LITTLE had seen one case operated on by Mr. Mules, and was much pleased with the operation.

TREATMENT FOR THE IMMEDIATE CURE OF CORNEAL ULCERS.

DR. MULES divides these into those of nervous and non-nervous origin. Nerve cases are not included. He cures these (non-nervous cases) in a few days, without scraping, cautery or section. Histories of twelve cases were given of infiltrated corneal ulcers with hypopyon in some of the cases, iritis in one. The cure was usually complete in three days, with a small nebula remaining.

The treatment consisted of—1. Anæsthesia by an 8% solution of cocain. Then he applies a thin wafer of iodoform over the cornea and gently closes the lids; these are covered with a pad of iodoform, the whole secured by a flannel roller to secure rest and prevent reinfection. After three days no further protection is necessary.

He has employed the same treatment as a prevention to infection after operations with uniformly good results.

DISCUSSION.

DR. NOYES said, in 1876, at the Congress in New York, Dr. Williams, of Cincinnati, had recommended the application of carbolic acid, and he, Dr. Noyes has proved its value.

DRAINAGE OF THE EYE.

DR. PFLUEGER read a paper on this subject. Drainage has

not been practiced in the eye except in detached retina. Other indications for it exist if we had a good method. For example, infection of the anterior chamber. This might be met by puncture and injection. In recent cases of detached retina, such drainage of the anterior chamber might be of service in facilitating the circulation of lymph. Might also be of use in kerato-conus and glaucoma. He has devised a soft rubber drainage apparatus for this purpose.

DISCUSSION.

DR. WALKER, of Liverpool, makes a permanent fistula by inserting a flap of conjunctiva into the corneal wound and the external muscles (recti) and orbicularis prevent closure.

End of first day's proceedure.

SECOND DAY, AUGUST 8.

DEMONSTRATIONS.

Specimens, microscopic slides, etc., were shown by Dr. Dimmer, of Vienna, of Albuminuric Retinitis; by Dr. Borthen, of Drontheim, of Leprous Diseases of the Eye; by Dr. Juler, of London, The Anatomy and Physiology of the Iris; by Dr. Franks, of Hamburg, of the Histological Changes in the Healing of Perforating Wounds of the Sclera.

DR. MANN, of Edinburgh, gave a lantern demonstration of the alterations in cells of visual centres produced by exposures of the eyes to light. He arrived at the following conclusions:

1. Nerve cells at rest store up chromatic material which is used up during the functional activity of the cell.

2. While this chemical change is going on, the nucleus enlarges, unless the action proceeds to over fatigue when it collapses.

CHORIO-RETINITIS AND RETINAL CHANGES.

DR. ABADIE, of Paris, read a paper on choroido-retinits, its

clinical varieties, etiology and treatment. He said: The ophthalmoscopic picture does not correspond to the disturbance of function, because the choroidal changes which are most marked ophthalmoscopically are not necessarily accompanied by corresponding retinal changes and *vice versa.*

This disease is apt to be accompanied by a peculiar form of optic atrophy, which is quite unlike the ordinary atrophy. It is of intra-ocular origin, and the color sense is not affected. Dr. Abadie would emphasize this point, and, finally, it is amenable to treatment.

The treatment consists in the administration of mercury, preferably subcutaneously. Potassium iodide is most harmful. Cases so treated do not yield good results. If treated subsequently with mercury, recovery is the rule.

DR. GUNN, of London, read a paper on the changes in the macula associated with retinal inflammation and edema, which he illustrated by a lantern demonstration. He had produced similar appearances in dead eyes by prolonged soaking in fluid.

DR. BENSON, of Dublin, reported observations on recurrent temporary visual obscurations, with the ophthalmoscopic appearances observed during the obscurations. The patient, an adult male, experienced sudden complete obscuration of the sight of the left eye four years ago, for the first time. Since then has had numerous recurrences, and, for the last five months, in the right eye also.

At first, the attacks came on at intervals of one month; later, as often as twice daily. For two years there was no failure of sight in the intervals between the attacks. It then began to decline, until now V.=R.$^{6}/_{LX}$, L.$^{1}/_{LX}$, with color scotoma. He does not use tobacco to excess, and is otherwise in perfect health.

Eyes normal externally. Ophthalmoscope ordinarily shows little. The disc is rather hazy, some white lines along the smaller vessels, and a few bright spots in the fundus of the left eye.

Examination immediately after an attack of obscuration

showed complete obliteration of the lower temporal artery, which lasted a few minutes and the blood column slowly returned. There were three such examinations during or immediately after an attack, and the appearance was each time as noted. An obscuration lasts from 2 to 5 minutes. Sometimes only a portion of the field is affected. There are no other subjective symptoms, no vertigo, no headache, no vomiting.

The attacks seem to be on the increase; the vision continues to get worse in the intervals.

Venous pulsation was present in both eyes; an arterial pulse could be produced by slight pressure.

DR. NETTLESHIP has published two cases with somewhat similar symptoms; but heart-disease is not present in this as in Nettleship's cases, and the obscuration is sometimes partial.

What is the explanation? Thrombosis or spasm? The extremely temporary character points to spasm, though local vascular disease may also be present.

DISCUSSION.

DR. NIEDEN, of Bochun, would ask whether sphygmographic tracings had been taken in Dr. Benson's case.

DR. DEUTSCHMANN, of Hamburg, would put a few questions to Dr. Abadie. Does he wish to erect a new form of choroidal disease? What are his reasons for considering the atrophy of the nerve as intra-ocular in origin? May it not be a forerunner of tabes.

He did not agree with Dr. Abadie's condemnation of potassium iodide. He himself gets better results from this than from mercury, though he approves the subcutaneous administration of the latter.

DR. THOMPSON, of Indianapolis, had frequently seen changes in the macula in young women during menstruation, after violent exercise, but very rarely in men.

DR. NOYES has seen fundi like those shown by Dr. Gunn, and has had two cases of temporary obscurations.

DR. ABADIE replied: The optic atrophy is not caused by the choroiditis, but is a part of the process. Cases of atrophy should be carefully examined. A small patch of choroiditis may be found, and this will clear up the diagnosis. He repeated his objections to potassium iodide.

RETRO-CHOROIDAL HÆMORRHAGE.

DR. DUFOUR read a paper on retro-choroidal hæmorrhage after operations on the eye. He congratulated any operator who has never had a case of this kind. He who has met with it after a well-executed operation will never forget it. In the first five he did nothing but use hemostatic measures with total loss of the eyes. The last three were more happy.

There is nothing to suggest that such an accident is to be expected, neither in the eye nor elsewhere, as in the heart, blood-vessels, etc. In his third last case, as soon as he observed the patient began to groan, he gave a large injection of morphine. The patient got pale, nauseated, and the hæmorrhage, or rather exit of the contents of the globe, was at once arrested. A fortnight later the ophthalmoscope showed a detachment of the retina at the source of the hæmorrhage. The retina became reattached. V. finally $=^1/_x$. In two subsequent cases he injected 1 centigram of morphia with arrest of the bleeding.

DISCUSSION.

DR. POWERS, of London, thought careful examination might differentiate these cases. Such eyes are not healthy.

DR. GRUENING, of New York, wished to know the ages of these patients. He had such a case early in his practice in a man aged 90. Recently he saw a case in a patient aged 84. Does it occur only in the very aged? Recorded observations are rare.

DR. DARIER, of Paris, thought apomorphia should be combined with morphia.

DR. AYRES, of Cincinnati, had a similar case in which he was compelled to enucleate.

DR. DUFOUR.—The ages of the patients were 50 to 80; the accident was not peculiar to the very old age. Apomorphia would have been indicated, but he did not have it, as we do not expect such on accident.

DR. TSCHERNING, of Paris, read a paper on the "Mechanism of Accommodation."

DR. CHIBRET had seen the margin of the lens emmetropic, and the center myopic during accomodation in a case of aniridia, by the shadow test.—*Philadelphia Polyclinic.*

[TO BE CONCLUDED.]